

## 1 Introduction

### 1.1 Purpose and Scope

This document outlines the required ETAP commands that offer professional installers the ability to control the LifeStyle 28II, 38 and 48 media centers using the serial data connection.

Appendix A lists the “Key Press” commands that simulate the pressing of a button on the remote control. However, some extra ETAP commands are included to offer a minimum set of control consistent with the usage of Lifestyle systems in an automated environment.

### 1.2 ETAP Command Elements

An ETAP command consists of command name followed by zero or more arguments. The first argument immediately follows the command name. Subsequent arguments are separated by commas. Spaces are ignored within the command line as is case, so they may be inserted anywhere or omitted entirely. The following two commands are identical as far as ETAP is concerned.

```
>AR12,%10,0y1101
```

```
>aR 12 , % 10, 0Y 1 1 0 1
```

#### 1.2.1 Numeric base for input

By default, any numeric command arguments are assumed to be base 16 (hex). Therefore, an argument of ‘10’ will be interpreted as hex 10 or decimal 16. The base of a number can be changed with a prefix from the following table:

Prefix base

0x 16

% 10

0y 2

Thus the following arguments are equivalent, if the number base is 16

80 hex

%128 decimal

0y10000000 binary

The input numeric base can be changed by the NB command. To change the input base to decimal the command is:

>NB 10

Number Base = 10

In this case the above arguments would be:

0x80 hex

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128 decimal

0y10000000 binary

## 2 Command Description

### 2.1.1 AR

#### 2.1.1.1 Description:

Argument test. Whatever arguments are entered on the command line are echoed back out;

shown interpreted as hex arguments and as string arguments. Use this to verify how the ETAP

parser is interpreting your arguments. This command is influenced by the NB command that

sets the number base in which numeric arguments will be interpreted.

#### 2.1.1.2 Syntax:

AR arg1[,arg2,arg3,...]

#### 2.1.1.3 Examples:

Number base = 16 (hex, which is the default base):

>AR 12a,%10,0y1011

Arg# | Hex Value |String Value (<- Points to End)

----|-----|-----

01 | 0000012A | 12a<-

02 | 0000000A |%10<-

03 | 0000000B |0y1011<-

In this example, the first argument is interpreted as a hex number, the second argument is interpreted as a decimal number (10 decimal = A hex) and the third argument is interpreted as a binary number (1011 binary = 11 decimal = B hex).

#### 2.1.2 CB

##### 2.1.2.1 Description:

Query/change the baud rate. If given without arguments, prints the current baud rate.

##### 2.1.2.2 Syntax:

CB [rate]

- rate - the new baud rate: one of 300, 600, 1200, 4800, 9600, 19200, 38400, 57600,

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115200 or 128000.

##### 2.1.2.3 Examples:

Find the current baud rate and change it to 9600

>CB

DEC: 19200

>CB 9600

Ã~`fžøž~àff~`øf~f~pž~ø~€æ€~€æ€øø <<<<<< the terminal is still set to 19200

baud

##### 2.1.2.4 Notes:

Immediately after entering this command, the baud rate of the attached terminal must be changed to match the new baud rate.

#### 2.1.3 EK

##### 2.1.3.1 Description:

Enable/disable RF remote keypress echoing.

##### 2.1.3.2 Syntax:

EK state

- state - enable or disable
  - o 1 - enable
  - o 0 - disable

The format of the output from the keypress is shown below. All numbers are printed in decimal.

EK keyCode, keyState, room, zone, producer

- keyCode: decimal value of the key code.
- keyState:
  - o 0 - key pressed
  - o 1 - key held (repeating)
  - o 2 - key released
- room - 0 - 14 for rooms A - O
- zone - 0 or 1
- producer - always 0 for RF remote

#### 2.1.3.3 Examples:

Enable echoing

>EK 1

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#### Enable Echo RF Remote Key

After enabling echoing, on an RF remote set to Room A (room = 0) and Zone 0, press and release '1' key then press, hold and release the Volume - (i.e. volume down) key. Note: press a key for more than 0.75 seconds to produce the "held" state.

EK 3841,0,0,0,0 '1' keyCode = 3841 = 0xf01

keyState = pressed

EK 3841,2,0,0,0 keyState = released

EK 27,0,0,0,0 volume down keyCode = 27 = 0x1b

keyState = pressed

EK 27,1,0,0,0 keyState = held

EK 27,2,0,0,0 keyState = released

#### 2.1.4 KP

##### 2.1.4.1 Description:

Simulate a key press to the system. Using the arguments, you can define who produced the key and for how long you pressed the key.

#### 2.1.4.2 Syntax:

>KP keyCode, producer, holdTime, repeatTime, zone, room

- keyCode - no default
- producer - default RF remote (27MHz, Version 3)
- holdTime (in ms) - default = 300 msec
- repeatTime (in ms) - default = 750 msec
- zone - default = 0 (Zone 1)
- room - default = 0 (Room A)

If only a keyCode is given, the command will assume an RF remote (27MHz, Version 3) key press of short duration which will not repeat for Zone 1, Room A.

The codes for the keyCodes and producer can be found in Appendix A (page 12).

The holdTime is defined as the length of time that the user holds down the key.

The repeatTime is defined as the amount of time that it takes for the key press to go into a repeat mode. If the repeatTime is less than or equal to the holdTime, then the key press is assumed to be a single press and release.

zone can be 0 or 1 for a two zone system. ( 0 = zone 1 and 1 = zone 2)

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room can be from 0 to 14 (0x00 to 0x0e) with a direct mapping to Rooms A to O.

#### 2.1.4.3 Examples:

Simulate a single RF remote (27 MHz Version 3) "Enter" keypress (keyCode = 23 (0x17)) using all defaults.

>KP 17

## Generating Key Press

Simulate a repeating Console Volume Up keypress (keyCode = 26 (0x1a)) for Zone 2, Room O.

```
>KP %26,3,%1000,%750,1,%14
```

## Generating Key Press

Simulate a IR Remote FM-AM keypress (keyCode = 3) Room D, using defaults for holdTime, repeatTime and zone .

```
>KP 3,5,,,,4
```

## Generating Key Press

### 2.1.5 PAO

#### 2.1.5.1 Description:

Power all off - simulates the pressing and releasing of the console All Off key

#### 2.1.5.2 Syntax:

```
>PAO
```

#### 2.1.5.3 Examples:

Put all rooms to OFF mode

```
>PAO
```

## Power All Off

### 2.1.6 QS

#### 2.1.6.1 Description:

Query station. Returns the frequency of the station (in khz), the station number in hex, and the current band. The band is represented by 0 for AM and 1 for FM.

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#### 2.1.6.2 Syntax:

```
>QS
```

#### 2.1.6.3 Examples:

Find the current station.

>QS

Current station is: 1110 kHz (Station # 0x03b)

Current band is: 0

#### 2.1.6.4 Notes

This command will return the current station regardless of what the current Source is. So right after power-up, when the system is in OFF source, the command will return:

>QS

Current station is: 87700 kHz (Station # 0x008)

Current band is: 1

which is the station the tuner is tuned to every time on power-up.

#### 2.1.7 RF

##### 2.1.7.1 Description:

Simulate an RF keypress. If room or zone is not given, they are assumed to be Room A, Zone 1.

##### 2.1.7.2 Syntax:

RF keyCode, , , [zone], [room]

- keyCode - see Appendix A (3)
- zone - 0 = Zone 1, 1 = Zone 2
- room - 0 - 14 (0x0 - 0xe) maps directly to rooms A - O

Note: the four commas between the keyCode and the room are mandatory. If the room is omitted, there will be five commas between keyCode and zone.

##### 2.1.7.3 Examples:

Simulate a Tuner Source keypress from Zone 2, Room O

>RF 3,,,,1,e

Generating RF Key Press

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## 2.1.8 TC

### 2.1.8.1 Description:

Tuner command. This takes effect only if the tuner is the selected source in either or both zones.

### 2.1.8.2 Arguments:

- 0 - Stop tuner
- 1 - Re-tune station (not implemented)
- 2 - Tune down
- 3 - Tune up
- 4 - Seek down
- 5 - Seek up
- 6 - Scan down (not implemented)
- 7 - Scan up (not implemented)

### 2.1.8.3 Examples:

Command tuner to tune up

>TC 3

Received command: Tune Up

>TC 4

Command tuner to seek down

Received command: Seek Down

Command tuner to stop seeking

>TC 0

Received command: STOP

## 2.1.9 TS

### 2.1.9.1 Description:

Tune to station. When the optional second argument ("khz") is used, the first argument is the frequency in kHz; otherwise the first argument is the station number. When the first argument is a station number, the optional second argument gives the target band; otherwise, the current band is used.

### 2.1.9.2 Syntax:

>TS freq,KHZ



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- Freq - frequency in KHz

>TS stationNumber,[band]

- stationNumber: The the station number.
- Band - 0 = FM, 1 = AM.

#### 2.1.9.3 Examples:

The tuner is tuned to 103.3 MHz FM. Tune to 98.1 MHz FM. The three commands given are equivalent in this case.

>TS %98100,KHZ

Received request to tune to : 98100 kHz

>TS 1a8

Received request to tune to : 98100 kHz

>TS 1a8,0

- no response for this format

>

#### 2.1.9.4 Notes:

Note that the format TS freq,band does not print a response. This is because this format of the command is used in Manufacturing Test which requires no response.

#### 2.1.10 VG

##### 2.1.10.1 Description:

Get volume level

##### 2.1.10.2 Syntax:

>VG [room]

- room - 0 - 14 (0x0 - 0xE) defaults to 0 (Room A)

Only implemented for Room A

##### 2.1.10.3 Examples:

Get the volume level for Room A

>VG

Volume set to 40

##### 2.1.10.4 Notes:

Caveat: Even though it is not implemented for rooms other than Room A, if another room is

given as an argument, the volume will be reported as zero regardless of the volume level in

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that room.

>VG 2

Volume set to 0

2.1.11 VS

2.1.11.1 Description:

Set volume

2.1.11.2 Syntax:

>VS volume,[room]

- volume - 0-64 (hex), 0-100 (decimal)
- room - 0-14 (0 - 0xE) - corresponds to rooms A - O - defaults to 0 (Room A)

Only implemented for room = 0 (Room A)

2.1.11.3 Examples:

Set volume in Room A to 50 (out of 100)

>VS %50,0

Volume set to 50

Set volume in Room A to 32 (0x20)

>VS 20

Volume set to 32

2.1.11.4 Notes:

This command takes effect even if the system is in the OFF state.

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### 3 Appendix A - Key Codes and Producers

#### Key Codes

```

KEY_VALUE_INVALID           // 0
KEY_VALUE_ON_OFF
KEY_VALUE_MUTE_ALL
KEY_VALUE_TUNER_SOURCE
KEY_VALUE_CD_DVD_SOURCE
KEY_VALUE_STORED_SOURCE
KEY_VALUE_AUX2_SOURCE
KEY_VALUE_TV_SOURCE
KEY_VALUE_TV_POWER
KEY_VALUE_VCR_SOURCE
KEY_VALUE_VCR_POWER        // 10
KEY_VALUE_AUX1_SOURCE
KEY_VALUE_AUX1_POWER
KEY_VALUE_TV_INPUT
KEY_VALUE_GUIDE_MENU
KEY_VALUE_EXIT_MENU
KEY_VALUE_DVD_MENU
KEY_VALUE_TITLE_MENU
KEY_VALUE_SETTINGS
KEY_VALUE_LEFT_ARROW
KEY_VALUE_RIGHT_ARROW      // 20
KEY_VALUE_UP_ARROW
KEY_VALUE_DOWN_ARROW
KEY_VALUE_ENTER_KEY
KEY_VALUE_CHANNEL_UP
KEY_VALUE_CHANNEL_DOWN
KEY_VALUE_VOLUME_UP
KEY_VALUE_VOLUME_DOWN
KEY_VALUE_LAST
KEY_VALUE_PLAYLIST
KEY_VALUE_STOP              // 30
KEY_VALUE_PLAY
KEY_VALUE_PAUSE
KEY_VALUE_FAST_FORWARD
KEY_VALUE_FAST_REVERSE
KEY_VALUE_SHUFFLE_REPEAT
KEY_VALUE_CHANGER
KEY_VALUE_WHOLE_ALBUM
KEY_VALUE_SMART_PLAY
KEY_VALUE_SEARCH
KEY_VALUE_POSITIVE_RATING  //40
KEY_VALUE_NEGATIVE_RATING
KEY_VALUE_JOIN_ZONE_1
KEY_VALUE_SETUP
KEY_VALUE_INFO

```

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```
KEY_VALUE_SOURCE
KEY_VALUE_ALL_OFF
KEY_VALUE_OPEN_CLOSE
KEY_VALUE_ERASE
KEY_VALUE_STORE
KEY_VALUE_PLAY_PAUSE    // 50
KEY_VALUE_DISC_UP
KEY_VALUE_DISC_DOWN
KEY_VALUE_MUTE
KEY_VALUE_CAB_SAT_SOURCE
KEY_VALUE_CAB_SAT_POWER
KEY_VALUE_REPEAT
KEY_VALUE_SHUFFLE
KEY_VALUE_STREAM_SWITCH
KEY_VALUE_HDD_SOURCE
KEY_VALUE_LOCAL_SOURCE   // 60
KEY_VALUE_AM_SOURCE_SELECT
KEY_VALUE_PAUSE_ASSERT
KEY_VALUE_FM_SOURCE_SELECT
KEY_VALUE_CD_NUMBER
KEY_VALUE_SIMILAR
KEY_VALUE_UMUSIC
KEY_VALUE_WHOLE_CD
KEY_VALUE_ON_ASSERT
KEY_VALUE_LIBRARY
KEY_VALUE_OFF_ASSERT     // 70
KEY_VALUE_MUTE_ALL_ASSERT
KEY_VALUE_PLACE HOLDER_1 // not used for
anything
KEY_VALUE_CHANGER_SOURCE
KEY_VALUE_MUTE_ASSERT
KEY_VALUE_NETWORK1_SOURCE
KEY_VALUE_NETWORK2_SOURCE // 76
// soft keys start at 2048 (0x800)
KEY_VALUE_SOFT_KEY_0     // 2048 (0X800)
KEY_VALUE_SOFT_KEY_1     // 2049 (0X801)
// meta keys start at 3072 (0xc00)
KEY_VALUE_META_KEY_0     // 3072 (0XC00)
KEY_VALUE_META_KEY_1     // 3073 (0XC01)
// digits start at 3840 (0xf00)
```

KEY\_VALUE\_NUMBER\_0 // 3840 (0XF00)  
KEY\_VALUE\_NUMBER\_1  
KEY\_VALUE\_NUMBER\_2  
KEY\_VALUE\_NUMBER\_3  
KEY\_VALUE\_NUMBER\_4  
KEY\_VALUE\_NUMBER\_5 // 3845 (0xF05)  
KEY\_VALUE\_NUMBER\_6  
KEY\_VALUE\_NUMBER\_7  
KEY\_VALUE\_NUMBER\_8  
KEY\_VALUE\_NUMBER\_9 // 3949 (0xF09)  
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// Placeholder value  
KEY\_VALUE\_TBD // 4095 (0xFFFF)

### Producers:

KEY\_PRODUCER\_RF\_REMOTE\_27MHZ\_VER1 // 0 (0x00)  
KEY\_PRODUCER\_RF\_REMOTE\_27MHZ\_VER2 // 1 (0x01)  
KEY\_PRODUCER\_RF\_REMOTE\_27MHZ\_VER3 // 2 (0x02)  
KEY\_PRODUCER\_CONSOLE\_VER0, // 3 (0x03)  
KEY\_PRODUCER\_CONSOLE\_VER1, // 4 (0x04)  
KEY\_PRODUCER\_IR\_REMOTE // 5 (0x05)  
KEY\_PRODUCER\_NETWORK // 6 (0x06)

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### 4 Appendix B - Preparing Cable and Hyperterminal

## 4.1 Preparing the Cable

Figure 1 shows how to wire a cable to connect the RS232 port of a computer to the serial data input jack of the Lifestyle 28II, 38 or 48 console.

Figure 1. RS232 Cable

## 4.2 Configuring HyperTerminal

HyperTerminal is a standard windows program that allows you to communicate directly to a COM port on a computer. The HyperTerminal configuration required to communicate with the Lifestyle 28II, 38 or 48 console is shown in the follow screen snapshots. The RS232 settings are:

Bit rate - 19200  
Data Bits - 8  
Parity - None  
Stop Bits - 1  
Flow Control - None